WLA SERIES WIRELESS LAN ACCESS POINTS

WLA371, WLA422, WLA522, WLA432, WLA632

Product Overview

The Juniper Networks WLA Series Wireless LAN Access Points provide client access, spectrum analysis, bridging, and wireless mesh services for indoor and outdoor deployments of enterprise wireless LANs (WLANs). Configured and controlled by Juniper Networks WLC Series Wireless LAN Controllers, the WLA Series performs deep packet inspection, encryption, traffic forwarding, and security enforcement locally, which results in optimized traffic flows, radically reduced latency, and massive scalability.

Product Description

The Juniper Networks® WLA Series Wireless LAN Access Points provide complete client access, spectrum analysis, mesh, and bridging services. Featuring support for 802.11a/b/g as well as 802.11n, the WLA Series provides seamless mobility both indoors and outdoors, and it enables scalable deployment of wireless voice over IP (VoIP), video, and real-time location services.

The WLA Series comes with complete security and networking services, along with advanced performance and scalability features which enable the access points to offload controllers by inspecting and forwarding traffic locally and performing encryption and security enforcement at the access point. The WLA Series also provides band steering, client load balancing, dynamic authorization, quality of service (QoS), bandwidth controls and dynamic call admission control (CAC)—all of which combine to ensure a more consistent user experience as traffic is more evenly distributed across controllers, access points, and radios. This also improves scalability, providing the same consistent user experience for thousands of mobile users and devices.

The WLA Series is simple to deploy and can easily be configured and managed remotely. Once installed, the WLA Series access points automatically monitor the data integrity and radio frequency (RF) signal strength of wireless channels, and continually tune for optimal RF channel and transmit power. Continuous scanning of the RF spectrum also allows early detection, classification, avoidance and remediation of performance degrading interference sources.

WLA Series access points enforce stringent prioritization of delay sensitive traffic for voice and other critical applications and provide granular quality of service (QoS), and bandwidth management capabilities on a per application, per user or per SSID basis. Wi-Fi Multimedia (WMM) or SpectraLink Voice Priority (SVP) can be configured to ensure optimal QoS for voice traffic. Access point policies allow per user, protocol or class-of-service (CoS) mapping.

WLA Series access points may also be deployed in small branch offices and retail outlets in a controller-less plug and play deployment model, which reduces the cost and complexity of installing wireless access in small remote sites. They may be managed via your WAN or through the Internet by controllers at headquarters, and will maintain local session persistence indefinitely, if the WAN link goes down.

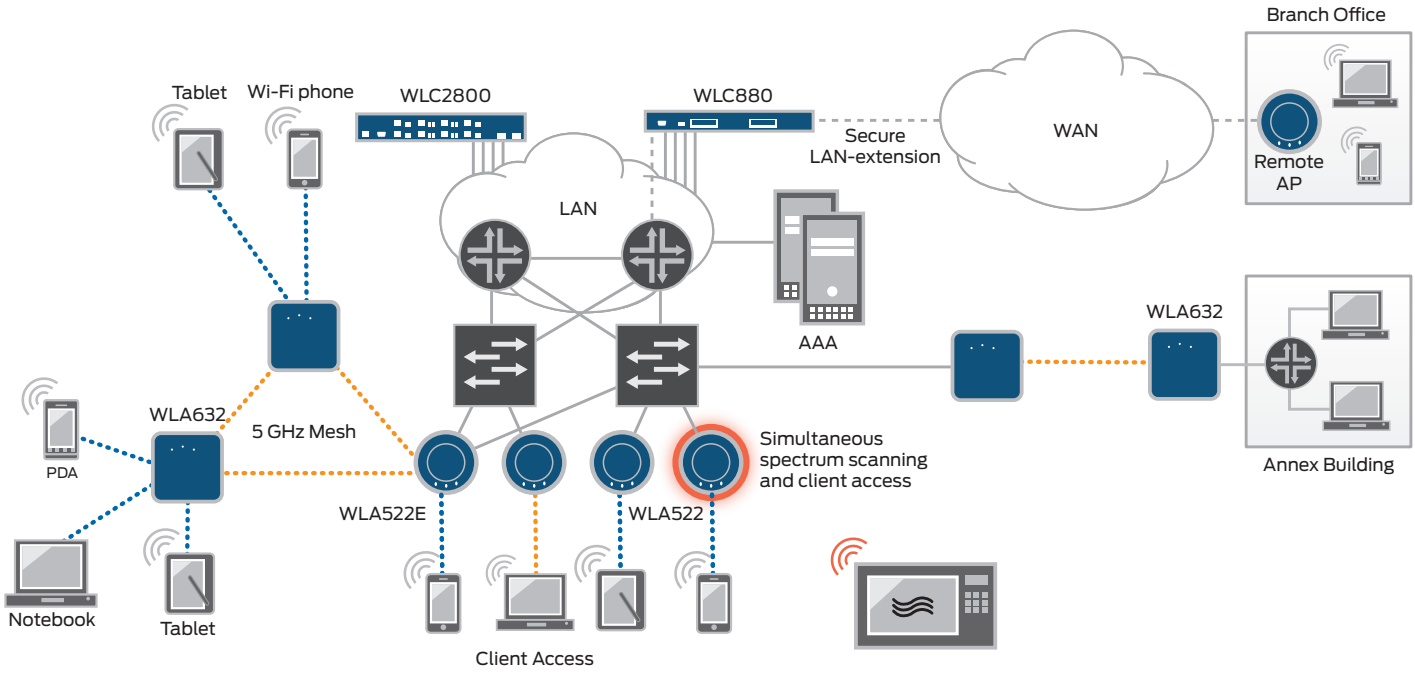

Figure 1. WLA Series Access Points provide client access, spectrum analysis, mesh, and bridging services

Table 1. Indoor and Outdoor Wireless Access Point Products

PRODUCT	DESCRIPTION
Indoor Wireless Access Points	
WLA371	· Single-radio indoor access point for 802.11a or 802.11b/g
WLA422	· Dual-radio indoor access point for 802.11a/b/g · Supports entry-level deployments with moderate performance and coverage requirements
WLA522	· Dual-radio 2x2 MIMO high-performance indoor access point for 802.11a/b/g/n · Optimized for high density deployments requiring maximum capacity · Available with external antenna ports for use with indoor or outdoor antennas
WLA432	· Dual-radio 3x3 MIMO high-performance indoor access point for 802.11a/b/g/n · Optimized for low density deployments requiring maximum coverage
Outdoor Wireless Access Points	
WLA632	· Dual-radio 3x3 MIMO high-performance outdoor access point for 802.11 a/b/g/n · Ruggedized, weatherproof enclosure suitable for extreme outdoor environments · Supports high-performance client access, long distance bridging, and mesh services

Features and Benefits

Security

With the highest security standards, WLA Series Wireless LAN Access Points support all relevant encryption methods, including Wi-Fi Protected Access 2 based on 802.11i (WPA2) and Wi-Fi Protected Access (WPA) in both enterprise (802.1X) and personal (pre-shared key) modes. There are no encryption keys, security credentials, or data stored locally, which eliminates any security risk if stolen or connected to an unauthorized network.

RF Management

The WLA Series plays a key role in rogue and intrusion detection as well as denial of service (DoS) attack detection. The WLA Series access points provide simultaneous support for both access service and spectrum analysis. This ensures early detection of common RF interferers and also allows for appropriate corrective actions to mitigate loss of performance due to interference. ActiveScan allows the WLA Series access points to fulfill a dual role, as the system scans all 802.11 channels while simultaneously providing wireless connectivity to mobile clients. SentryScan allows the WLA Series access points or individual access point radios to act as dedicated sentries, providing continuous scanning.

When rogue or interference sources are detected, the WLA Series access points coordinate with the WLC Series controllers for an appropriate mitigation response to ensure the highest air quality for efficient and high performing wireless access services. If an access point goes out of service and leaves a coverage hole, the WLC Series controllers can change channels or adjust power levels on multiple nearby access points in a coordinated fashion in order to restore Wi-Fi coverage and provide optimal reliability and performance.

Spectrum Intelligence

In addition to the typical RF scanning performed as a wireless intrusion measure, which is supported on all WLA Series access points, the WLA522 is also equipped to gather spectrum intelligence either as a dedicated spectrum sensor, or simultaneously together with client access. This enables better troubleshooting and avoidance of performance-degrading interference sources.

Working in conjunction with interference avoidance planning, advanced diagnostics, visualization and reporting features in RingMaster, the WLA522 can detect, classify and report a wide variety of non Wi-Fi interference sources. These include microwave ovens, spread-spectrum frequency hopping wireless devices, movement sensors, continuous wave transmitters (video cameras, wireless bridges) and many more that operate on the same unlicensed spectrum that Wi-Fi relies on.

Easy Installation

The WLA Series indoor access points ship with a flexible mounting kit designed for ceiling-mounted or wall-mounted deployment, with common mounting brackets for easy upgrades to 11n. The WLA Series is simple to deploy and can be configured and easily managed remotely.

The aesthetically appealing enclosure of the WLA Series indoor access points is designed to blend into typical office environments, minimizing attention to its function. The enclosure design resembles a smoke detector, making it less likely to be tampered with, while featuring a built-in Kensington lock system for added physical security.

Branch Office Deployment

WLA Series 11n access points support a “Remote AP” mode which permits a low-cost controller-less deployment model in small retail and branch offices. Without requiring any networking knowledge, anyone can physically install the access point, and it initializes itself automatically by connecting back to a WLC Series controller at corporate over an existing VPN or via encrypted tunnels through the Internet. Once initialized, the Remote AP provides client services, and can maintain stand alone operation with session persistence for an extended period, if WAN links go down.

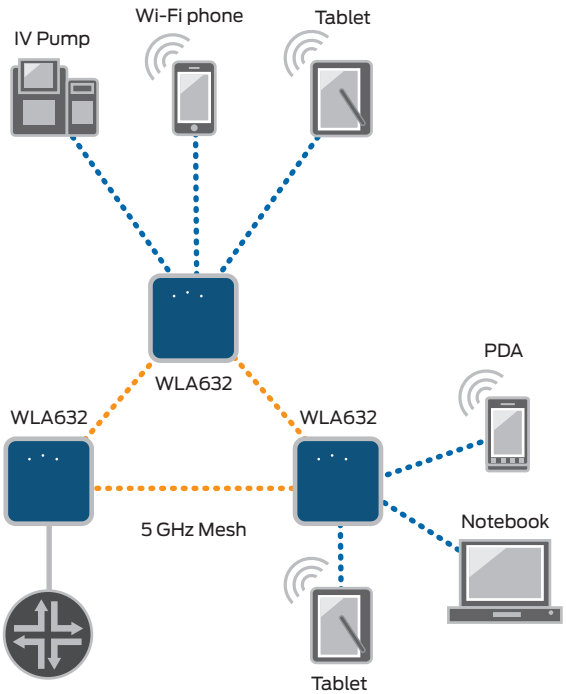

Figure 2. WLA Series wireless mesh services diagram

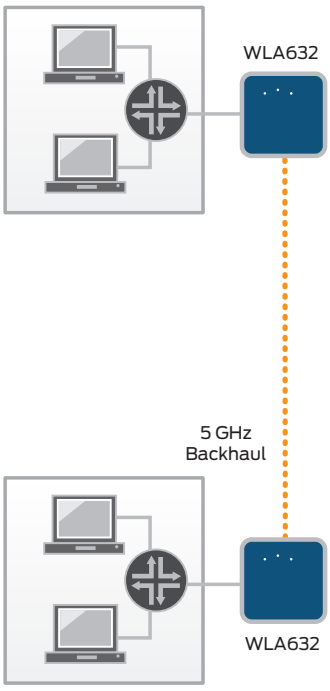

Figure 3. WLA Series wireless bridge services diagram

Outdoor Deployment

The WLA522 features external antenna ports, which allows for outdoor rated antennas to be mounted on a building exterior while the access point is mounted inside. The WLA632 outdoor access point comes in a ruggedized, weatherproof enclosure suitable for extreme outdoor environments and industrial-grade deployments. The WLA632 complies with NEMA4X and IP67 standards for corrosion resistance and features built-in lightning protection for antenna ports, as well as surge protection for Ethernet and power ports. The WLA632 also has automatic thermal management inside the access point and includes received signal strength indicator (RSSI) meter functions on LEDs for easy antenna alignment in the field.

Bridging and Mesh

In addition to traditional access point functionality, the WLA Series may also be deployed as a wireless mesh to extend the reach of enterprise WLANs where LAN cabling cannot reach or is not desired. Intelligent switching is supported in all mesh modes, enabling each mesh node to provide the shortest, least congested path to the destination over encrypted secure mesh links.

The WLA Series access points also support point-to-point bridging to provide seamless connectivity between buildings over a wireless backhaul, to avoid the expense, inconvenience, and delay of laying new cable.

Optimized Traffic Flows

WLA Series Wireless LAN Access Points take advantage of Juniper Networks highly distributed mobility architecture known as Smart Mobile, by performing encryption, deep packet inspection and forwarding locally at the access point. This not only improves scalability by offloading WLAN controllers, it also results in optimized traffic flows and radically reduced latency for real-time applications. Along with a wealth of dynamic load balancing techniques, this architecture ensures the scalability and performance to support the most demanding wireless applications, including voice over WLAN for thousands of users, video and real-time location services.

Real-Time Location Services

The WLA Series also supports location-based services that rely on Wi-Fi signal information for accurate three-dimensional positioning. Common applications include asset tracking, IT support, and network security based on client location.

Unlike many wireless location systems that rely on tags or client software on the devices being tracked, the WLA Series can detect the position of any active Wi-Fi device including smartphones as well as many medical devices.

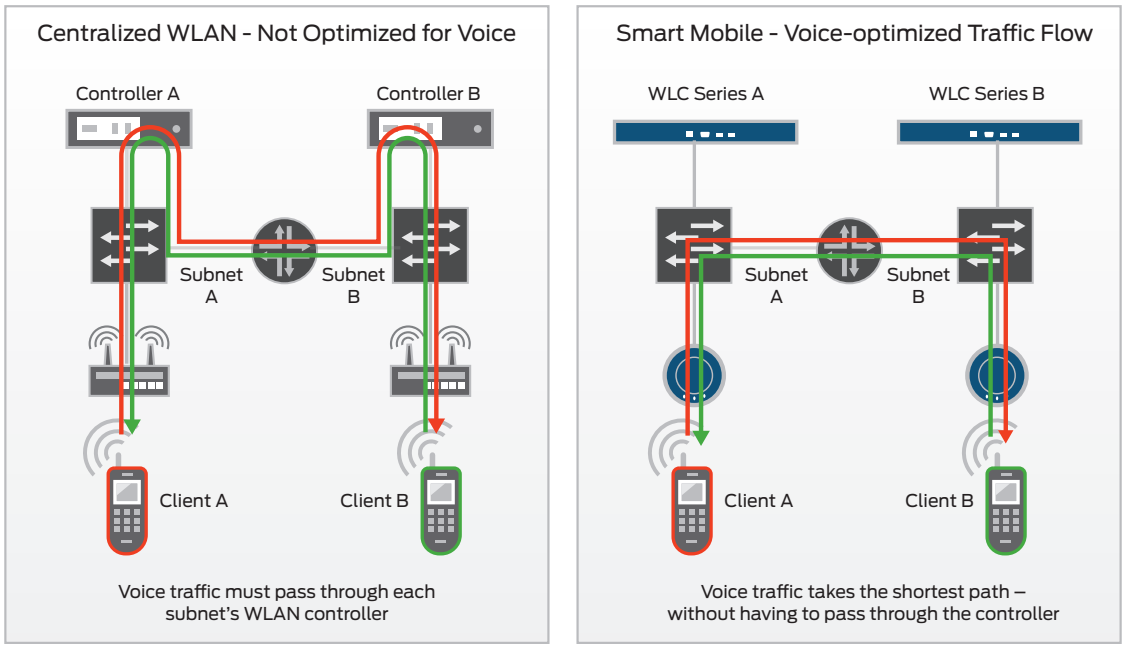

Figure 4: Local forwarding at the access point minimizes latency

WLA371 WLA422 WLA522 WLA432 WLA632

Features

	WLA371	WLA422	WLA522	WLA432	WLA632
Location	**Indoor**	**Indoor**	**Indoor**	**Indoor**	**Outdoor**
Radios	Single, selectable 802.11 a/b/g operation	Dual with 802.11a (5 GHz) and 802.11b/g (2.4 GHz) concurrent operation	Dual with 802.11a/n (5 GHz) and 802.11b/g/n (2.4 GHz) concurrent operation	Dual with 802.11a/n (5 GHz) and 802.11b/g/n (2.4 GHz) concurrent operation	Dual with 802.11a/n (5 GHz) and 802.11b/g/n (2.4 GHz) concurrent operation
Internal omni-directional antennas	✓	✓	✓	✓	
802.11n Support					
MIMO: (# radio transmit and # radio receive chains)			2 x 2	3 x 3	3 x 3
Number of spatial streams			2	2	2
20 MHz and 40 MHz channels			✓	✓	✓
PHY data rates up to 300 Mbps per radio			✓	✓	✓
Packet aggregation (A-MPDU Tx/Rx, AMSDU Tx/Rx)			✓	✓	✓
Maximal ratio combining			✓	✓	✓
Cyclic Delay Diversity (CDD)			✓	✓	✓
Security					
Physical Security					
Highly inconspicuous design, looks like a smoke detector	✓	✓	✓	✓	
Safe tamper-proof design with completely sealed enclosure	✓	✓	✓	✓	✓
No data, security credentials, or encryption keys stored locally	✓	✓	✓	✓	✓
No console port; no local access is possible	✓	✓	✓	✓	✓
If stolen, no secure configuration data goes with it	✓	✓	✓	✓	✓
Stolen AP can be “blacklisted”	✓	✓	✓	✓	✓
Integrated Kensington security lock feature	✓	✓	✓	✓	
WIDS/WIPS					
ActiveScan: simultaneous scanning and client services	✓	✓	✓	✓	✓
SentryScan: dedicated scanning and mitigation	✓	✓	✓	✓	✓
Mesh/Bridging					
Bridging and mesh support		✓	✓	✓	✓
Installation and Configuration					
Mounting					
One snap invisible ceiling grid attachment	✓	✓	✓	✓	
Compatible indoor mounting brackets	✓	✓	✓	✓	
Outdoor pole mount brackets and swivel collar					✓
Powering					
802.3af or 802.3at compliant PoE switch or PoE injector	✓	✓	✓	✓	
External PSU 48VDC with 8-pin (male) DIN connector					✓
RF Management					
Outage resiliency planning for RF auto-tuning using Juniper Networks RingMaster	✓	✓	✓	✓	✓
Spectrum analysis and classification of interferers			✓		

Specifications

	WLA371	WLA422	WLA522	WLA432	WLA632
Hardware Specifications					
Dimensions	6.6 in (Diameter) x 1.85 in (H)	6.75 in (Diameter) x 2.09 in (H)	7.1 in (Diameter) x 2.4 in (H)	8.11 in (Diameter) x 3.23 in (H)	11.18 in (H) x 11.18 in (W) x 5.53 in (D)
	(16.76 cm (Diameter) x 4.69 cm (H))	(17.15 cm (Diameter) x 5.30 cm (H))	(18 cm (Diameter) x 6.1 cm (H))	(20.59 cm (Diameter) x 8.2 cm (H))	(28.4 cm (H) x 28.4 cm (W) x 14.05 cm (D))
Weight	12.5 oz (354 g)	12.9 oz (366 g)	1.25 lbs (569 g)	28.2 oz (0.8 kg)	9.8 lbs (4.44 kg)
LAN interfaces	Two 10/100BASE-T auto-sensing (RJ45) PoE ports	Two 10/100 BASE-T auto-sensing (RJ45) PoE ports	One 10/100/1000 BASE-TX auto-sensing (RJ45) PoE port	Two 10/100/1000 BASE-TX auto-sensing (RJ45) PoE ports	One 10/100/1000 Ethernet port for unshielded twisted pair connectivity on ruggedized 8 pin DIN connector
Environmental					
Operating temperature	32º to 122º F (0º to 50º C)	32º to 104º F (0º to 40º C)	32º to 122º F (0º to 50º C)	32º to 122º F (0º to 50º C)	-40º to 131º F (-40º to 55º C)
Storage temperature	-4º to 158º F (-20º to 70º C)	-13º to 158º F (-25º to 70º C)	-40º to 158º F (-40º to 70º C)	13º to 158º F (-25º to 70º C)	40º to 158º F (-40º to 70º C)
Humidity	10% to 95% (noncondensing)	10% to 95% (noncondensing)	10% to 95% (noncondensing)	10% to 95% (noncondensing)	10% to 95% (noncondensing)
Status indicator LEDs	3 dual color	3 dual color	3 dual color	3 dual color	3 dual color
Power consumption at full operation (Cat 5, 100 m)	8.2 W	9.3 W	11.3 W	15 W (3x3) 11.9 W (2x3)	30 W
802.11a and 802.11a/n Radio Specifications					
5.15 GHz to 5.85 GHz operating frequency	✓	✓	✓	✓	✓
Orthogonal Frequency Division Multiplexing (OFDM)	✓	✓	✓	✓	✓
Transmit Power					
Max power (Actual output power may be limited by regulatory domain requirements)	23 dBm	23 dBm	21 dBm with 2 antennas	22 dBm with 3 antennas	19 dBm with 3 antennas
Configurable Association Rates					
802.11n Modulation Coding Scheme MCS 0 – MCS 15 (6.5 Mbps – 300 Mbps)			✓	✓	✓
802.11a Legacy Rates: 54 Mbps, 48 Mbps, 36 Mbps, 24 Mbps, 18 Mbps, 12 Mbps, 9 Mbps and 6 Mbps with automatic rate fallback	✓	✓	✓	✓	✓
802.11g and 802.11g/n Radio Specifications					
2.4 GHz to 2.484 GHz operating frequency	✓	✓	✓	✓	✓
Orthogonal Frequency Division Multiplexing (OFDM)	✓	✓	✓	✓	✓
Transmit Power					
Max power (Actual output power may be limited by regulatory domain requirements)	23 dBm	23 dBm	21 dBm with 2 antennas	23 dBm with 3 antennas	20 dBm with 3 antennas
Configurable Association Rates					
802.11n Modulation Coding Scheme MCS 0 – MCS 15 (6.5 Mbps – 300 Mbps)			✓	✓	✓
802.11g Legacy Rates: 54 Mbps, 48 Mbps, 36 Mbps, 24 Mbps, 18 Mbps, 12 Mbps, 9 Mbps and 6 Mbps with automatic rate fallback	✓	✓	✓	✓	✓
802.11b Radio Specifications					
2.4 GHz to 2.484 GHz operating frequency	✓	✓	✓	✓	✓
Direct-Sequence-Spread-Spectrum (DSSS)	✓	✓	✓	✓	✓
Transmit Power					
Max power (Actual output power may be limited by regulatory domain requirements)	23 dBm	23 dBm	21 dBm with 2 antennas	18 dBm with 3 antennas	17 dBm with 3 antennas
Configurable Association Rates					
11 Mbps, 5.5 Mbps, 2 Mbps, and 1 Mbps with automatic fallback	✓	✓	✓	✓	✓

Specifications (continued)

	WLA371	WLA422	WLA522	WLA432	WLA632
Radio Approvals					
Channel Availability					
Based on configured regulatory domain	✓	✓	✓	✓	✓
Radio Approvals					
USA: FCC	✓	✓	✓	✓	✓
Canada: IC	✓	✓	✓	✓	✓
EU: CEN-CENELEC	✓	✓	✓	✓	✓
Japan: MIC	✓	✓	✓	✓	✓
Others: ask representative		✓	✓	✓	✓
Standards Support					
IEEE					
802.3i: 10BASE-T Ethernet	✓	✓	✓	✓	✓
802.3u: 100BASE-TX Ethernet	✓	✓	✓	✓	✓
802.3ab: 1000BASE-TX Gigabit Ethernet			✓	✓	✓
802.3af: Power over Ethernet	✓	✓	✓	✓	
802.3at: Power over Ethernet			✓	802.3af+	
802.11e, 802.11i	✓	✓	✓	✓	✓
802.1X Network Access Control and Mutual Authentication	✓	✓	✓	✓	✓
802.11a, 802.11b, 802.11g Wireless Ethernet	✓	✓	✓	✓	✓
802.11n			✓	✓	✓
802.11e quality of service (QoS)(WMM), call admission control (TSPEC), unscheduled power save delivery (U-APSD)	✓	✓	✓	✓	✓
Fast Roaming (PMK Caching), encryption (AES/CCMP and TKIP)	✓	✓	✓	✓	✓
Wi-Fi Alliance					
Wi-Fi Alliance Protected Access 1.0 (WPA) and 2.0 (WPA2)	✓	✓	✓	✓	
Wi-Fi Multimedia (WMM) & Wi-Fi Multimedia Power Save (WMM-PS)	✓	✓	✓	✓	
Wi-Fi Certified for 802.11a/b/g	✓	✓			
Wi-Fi Certified for 802.11a/b/g/n			✓	✓	
IETF					
IETF CAPWAP WG Taxonomy and Architecture compatibility	✓	✓	✓	✓	✓
Regulatory Compliance					
Safety					
USA/CAN CSA C22-2 60950-1	✓	✓	✓	✓	✓
CB Scheme IEC 60950-1	✓	✓	✓	✓	✓
IEC 60950-22					✓
EU Low Voltage Directive 2006/95/EC	✓	✓	✓	✓	✓
UL-2043 Plenum Rated	✓	✓	✓*	✓	
EU EMC Directive 2004/108/EC					✓
R&TTE EU Directive 1999/5/EC	✓	✓	✓	✓	✓
Environmental					
WEEE	✓	✓	✓	✓	✓
RoHS	✓	✓	✓	✓	✓
EN60601-1-2: EMC Medical Standard	✓	✓	✓	✓	✓
Ingress Protection: IP 67					✓
Other					
FCC Part 15, Class B	✓	✓	✓	✓	
ICES-003, Class B	✓	✓	✓	✓	
EN 301 893	✓	✓	✓	✓	✓

* The Plenum rating applies to the 522E model

Juniper Networks Services and Support

Juniper Networks is the leader in performance-enabling services and support, which are designed to accelerate, extend, and optimize your high-performance network. Our services allow you to bring revenue-generating capabilities online faster so you can realize bigger productivity gains and faster rollouts of new business models and ventures. At the same time, Juniper Networks ensures operational excellence by optimizing your network to maintain required levels of performance, reliability, and availability. For more details, please visit **www.juniper.net/us/en/products-services**.

Ordering Information

MODEL NUMBER	DESCRIPTION
WLA371 Hardware	
WLA371B	AP with single 802.11a/b/g radio, dual 10/100 802.3af PoE ports and internal dual-band diversity antennas.
WLA422 Hardware	
WLA422B	AP with dual 802.11a and 802.11b/g radios, dual 10/100 802.3af PoE ports, internal dual-band diversity antennas, external female RP SMA jacks for .11a and .11b/g antennas (purchased separately).
WLA422 External Antennas	
WLA-ANT1060R	60º indoor/outdoor 802.11b/g sector antenna with 10 dB gain. Includes 36" M/M-RP SMA cable and mounting kit.
WLA-ANT1120R	120º indoor/outdoor 802.11b/g sector antenna with 7 dB gain. Includes 36" M/M-RP SMA cable and mounting kit.
WLA-ANT1180R	180º indoor/outdoor 802.11b/g sector antenna with 6 dB gain. Includes 36" M/M-RP SMA cable and mounting kit.
WLA-ANT5060R	60º indoor/outdoor 802.11a sector antenna with 14 dB gain. Includes 36" M/M-RP SMA cable and mounting kit.
WLA-ANT5120R	120º indoor/outdoor 802.11a sector antenna with 12 dB gain. Includes 36" M/M-RP SMA cable and mounting kit.
WLA-ANT5180R	180º indoor/outdoor 802.11a sector antenna and 10 dB gain. Includes 36" M/M-RP SMA cable and mounting kit.
WLA-ANT7360R	360º indoor dual-band omni-directional antenna and 6 dB (8 dB) gain in the 2.4 GHz (5 GHz) band. Includes 36" M/M-RP SMA cable and mounting kit.
WLA-ANT7360R-OUT	360º outdoor dual-band omni-directional antenna with 6 dB (8 dB) gain in the 2.4 GHz (5 GHz) band; includes mast mounting kit and 36" M/M Type N to RP-SMA cable.
WLA522 Hardware	
WLA522	AP with dual 802.11a/n and 802.11b/g/n radios, single 10/100/1000BASE-T 802.3af PoE port and four internal (2*2) MIMO antennas.
WLA522E	Plenum-rated AP with dual 802.11a/n and 802.11b/g/n radios, single 10/100/1000BASE-T 802.3af PoE port and four external antenna ports. Includes four paddle antennas (not plenum rated).

MODEL NUMBER	DESCRIPTION
WLA522 Spectrum Analysis Feature License	
WLC-SPECTRUM-U1	Spectrum Analysis Module License for 1 AP. Requires software version 7.5 or later.
WLC-SPECTRUM-U4	Spectrum Analysis Module License for 4 APs. Requires software version 7.5 or later.
WLC-SPECTRUM-U16	Spectrum Analysis Module License for 16 APs. Requires software version 7.5 or later.
WLC-SPECTRUM-U32	Spectrum Analysis Module License for 32 APs. Requires software version 7.5 or later.
External Antennas (WLA522E Only)	
WLA-ANT5007-OUT	Outdoor two-element cross-polarized high-gain directional panel antenna for 11n 5 GHz band.
WLA-ANT7360A-OUT	360º outdoor dual-band omni-directional antenna with 6 dB (8 dB) gain in the 2.4 GHz (5 GHz) band; includes mast mounting kit and 36" Type N male to Type N male low-loss cable.
WLA-ANT74520-OUT	Indoor/outdoor dual-band three-element directional panel antenna for 11n. 10.9 dB (13.5 dB) gain in the 2.4 GHz (5 GHz) band and 45 degree (20 degree) horizontal beamwidth in the 2.4 GHz (5 GHz) band.
External Antennas (WLA522E Only) (continued)	
WLA-ANT77555-OUT	Indoor/outdoor dual-band three-element directional panel antenna for 11n, 8 dB (10.7 dB) gain in the 2.4 GHz (5 GHz) band and 75 degree (55 degree) horizontal beamwidth in the 2.4 GHz (5 Hz) band.
WLA-ANTXTEND-OUT	12" Belden 7806A cable (LMR-195) with N-female and RP-SMA plug connectors for extending WLA522E coaxial interface for use with external antennas.
WLA432 Hardware	
WLA432	AP with dual 802.11a/n and 802.11b/g/n radios, dual 10/100/1000BASE-T 802.3af PoE ports with pre-standard high-power PoE support, and six internal (3*3) MIMO antennas.
WLA632 Hardware	
WLA632-01	Outdoor 802.11n AP with dual 802.11a/n and 802.11g/n radios, single 10/100/1000BASE-T Ethernet data port, and external female Type N jacks for 802.11a/n and 802.11b/g/n antennas (purchased separately). Includes WLA-XPS6201-OUT power supply.
WLA632 Power Accessories	
WLA-XPS6201-OUT	External power supply for the WLA632. 100-240 VAC 50-60Hz . Includes AC input cable.
WLA-XPSCABL-OUT	Complete cable replacement kit for WLA-XPS6201-OUT.

Ordering Information (continued)

MODEL NUMBER	DESCRIPTION
WLA632 External Antennas	
WLA-ANT5007-OUT	Outdoor two-element cross-polarized high-gain directional panel antenna for 11n 5 GHz band.
WLA-ANT7360A-OUT	360º outdoor dual-band omni-directional antenna for 11n. 6 dB (8 dB) gain in the 2.4 GHz (5 GHz) band; includes mast mounting kit and one 36" Type N male to Type N male low-loss cable.
WLA-ANT74520-OUT	Indoor/outdoor dual-band three-element directional panel antenna for 11n. 10.9 dB (13.5 dB) gain in the 2.4 GHz (5 GHz) band and 45 degree (20 degree) horizontal beamwidth in the 2.4 GHz (5 GHz) band.
WLA-ANT77555-OUT	Indoor/outdoor dual-band three-element directional panel antenna for 11n, 8 dB (10.7 dB) gain in the 2.4 GHz (5 GHz) band and 75 degree (55 degree) horizontal beamwidth in the 2.4 GHz (5 GHz) band.
WLA-ANTCBL3MM-OUT	3m M/M ULA400 cable with Type N connectors for extension of outdoor antennas.
WLA-ANTPROT-OUT	N-male to N-female lightning protector for direct mount.
WLA-ANTLGTNG-OUT	Lightning arrestor kit for outdoor antenna installations. Includes F/F Type N Bulkhead with 0-6 GHz range, 3m M/M Type N ULA400 low loss cable, and grounding attachment.
Access Point Mesh/Bridging Licenses	
WLC-MESH-U4	Mesh Module license for 4 APs. Requires software version 7.1 or later.
WLC-MESH-U12	Mesh Module license for 12 APs. Requires software version 7.1 or later.
WLC-MESH-U32	Mesh Module license for 32 APs. Requires software version 7.1 or later.

About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at **www.juniper.net**.

Notes

Notes

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